AMENDMENTS TO THE CLAIMS

Please amend claims 8, 11, 14 and 15 as follows:

1. (Original) An image processing apparatus for removing noise of an input image and for emphasizing contrast of a contour portion, comprising:

a filter for passing a high-frequency component of input image data therethrough;

a deriving section for obtaining first and second conversion coefficients having different magnitude relationships between an image contour portion and noise by subjecting the input image data to discrete wavelet conversion and for obtaining an emphasis control amount based on the square of the first conversion coefficient, the product of the first and second conversion coefficients, and a predetermined setting value;

a multiplying section for outputting the product of the emphasis control amount sent from the deriving section and an output of the filter; and

an adding section for obtaining output image data by adding the product output from the multiplying section and the input image data.

2. (Original) An image processing apparatus according to Claim 1, wherein the deriving section outputs a negative value for image flat portion to cause the adding section to subtract high-frequency component from the input image data, and the deriving section outputs a positive value for the image contour portion to cause the adding section to add the hi~ frequency component to the input image data.

3. (Original) An image processing apparatus according to Claim 1, wherein the deriving section comprises:

a discrete wavelet conversion section for obtaining the first and second conversion coefficients by subjecting the input image data to discrete wavelet conversion;

a first circuit having a square circuit for squaring the first conversion coefficient;

a second circuit having a multiplier for multiplying the first and second conversion coefficients; and

a setting section for calculating and outputting a linear sum of a value obtained by multiplying an output of the first circuit by predetermined α, a value obtained by multiplying an output of the second circuit by predetermined β, and the value of predetermined γ.

4. (Original) An image processing apparatus according to Claim 3, wherein the setting section causes the emphasis control amount to be a positive value in the image contour portion and to be a negative value in a flat portion by setting $\alpha = -1$, $\beta = 1$ and $\gamma = 0$.

5. (Original) An image processing apparatus according to Claim 3, wherein the setting section achieves uniform contrast emphasis for all pixels by setting $\alpha = 0$, $\beta = 0$, and $\gamma = 1$.

6. (Original) An image processing apparatus according to Claim 3, wherein the setting section applies smoothing to all pixels uniformly by setting $\alpha = 0$, $\beta = 0$, and $\gamma = -1$.

7. (Original) An image processing apparatus according to Claim 3, wherein the setting section achieves image emphasis with noise amplification being suppressed, without removing noise, by setting $\alpha = 0$, $\beta = 1$, and $\gamma = 0$.

8. (Currently Amended) An image processing apparatus according to Claim 1, wherein the deriving section comprises a discrete wavelet conversion section, the discrete wavelet conversion section comprising:

a first high-pass filter for carrying out one-dimensional filter processing of each line in a horizontal direction of the input image data to output the first conversion coefficient in the horizontal direction;

a second high-pass filter for carrying out one-dimensional filter processing of each line in a vertical direction of the input image data to output the first conversion coefficient in the vertical direction;

a low-pass filter for carrying out filter processing of each line in the horizontal direction and for carrying out filter processing of each line in the vertical direction of the input image data;

a third high-pass filter for carrying out one-dimensional filter processing of each line in the horizontal direction of an output from the low-pass filter to output the second conversion coefficient in the horizontal direction; and

a fourth high-pass filter for carrying out one-dimensional filter processing of each line in the vertical direction of the output from the low-pass filter to output the second conversion coefficient in the vertical direction.

9. (Original) An image processing apparatus according to Claim 1, wherein the deriving section further comprises a limiter for limiting a numerical range of a calculated linear sum.

10. (Original) An image processing apparatus according to Claim 1, further comprising an amplifying section for determining a degree of emphasis by multiplying an output of the multiplying section by a constant and outputting the product to the adding section.

11. (Currently Amended) An image processing method of removing noise of an input image and of emphasizing contrast of a contour portion, comprising:

obtaining first and second conversion coefficients having different magnitude relationships between an image contour portion and noise by subjecting input image data to discrete wavelet conversion and obtaining an emphasis control amount based on the square of the first conversion coefficient, the product of the first and second conversion coefficients, and a predetermined setting value;

outputting the multiplication value of the emphasis control amount and a high-frequency component of the input image data; and

~~causing an adding section to~~ obtaining output image data by adding the multiplication value and the input image data.

12. (Original) An image processing method according to Claim 11, comprising calculating and outputting a linear sum of a value obtained by multiplying the square of the first conversion coefficient by predetermined α, a value obtained by multiplying the product of the first and second conversion coefficients by predetermined β, and the value of predetermined γ.

13. (Original) An image processing method according to Claim 12, wherein, the emphasis control amount is a positive value in the image contour portion and a negative value in a flat portion by setting $\alpha = -1$, $\beta = 1$, and $\gamma = 0$.

14. (Currently Amended) An image processing program for removing noise and emphasizing contrast in a contour portion of an input image, the image processing program causing a computer to make a processing section execute the steps of:

reading input image data from a storage section or an input section;

obtaining first and second conversion coefficients having different magnitude relationships between an image contour portion and noise by subjecting the input image data to discrete wavelet conversion and obtaining an emphasis control amount based on the square of the first conversion coefficient, the product of the first and second conversion coefficients, and a predetermined setting value;

outputting a multiplication value of the emphasis control amount and a high-frequency component of the input image data;

~~causing an adding section to~~ obtaining output image data by adding the multiplication value and the input image data; and

storing the obtained output image data in a storage section and/or outputting the obtained output image data to an output section or to a display section.

15. (Currently Amended) A computer-readable recording medium having recorded an image processing program for removing noise and emphasizing contrast in a contour portion of an input image, the image processing program causing a computer to make a processing section execute the steps of: reading input image data from a storage section or an input section;

obtaining first and second conversion coefficients having different magnitude relationships between an image contour portion and noise by subjecting the input image data to discrete wavelet conversion and obtaining an emphasis control amount based on the square of the first conversion coefficient, the product of the first and second conversion coefficients, and a predetermined setting value;

outputting a multiplication value of the emphasis control amount and a high-frequency component of the input image data;

~~causing an adding section to~~ obtaining output image data by adding the multiplication value and the input image data; and

storing the obtained output image data in a storage section and/or outputting the obtained output image data to an output section or to a display section.